What is claimed is

1   1. An image processing apparatus comprising:

2   an acquisition unit for acquiring image data that

3   includes a plurality of pixels, each of which is set as a

4   target pixel to be judged;

5   a color pixel judgment unit for judging whether the target

6   pixel is a color pixel, the color pixel being a pixel other

7   than a monochrome pixel;

8   a color area judgment unit for judging whether the target

9   pixel is in a color area that includes a plurality of color

10   pixels, by referring to a judgment result of the color pixel

11   judgment unit;

12   a character-halftone judgment unit for judging whether

13   the target pixel is in an edge area of a character that is

14   present on a halftone-dot area; and

15   a switch unit for switching, when a judgment result of

16   the character-halftone judgment unit is affirmative, an

17   operation of image processing to be performed on the target

18   pixel in accordance with a judgment result of the color pixel

19   judgment unit and a judgment result of the color area judgment

20   unit.

1   2. The image processing apparatus of Claim 1,

2   wherein the character-halftone judgment unit includes:

3   an edge judgment unit for judging whether the target

4 pixel is in an edge area of a character; and

5   an isolated pixel judgment unit for judging whether the

6 target pixel corresponds to an isolated pixel, and

7   the character-halftone judgment unit judges whether the

8 target pixel is in an edge area of a character that is present

9 on a halftone-dot area, by referring to a judgment result

10 of the edge judgment unit and a judgment result of the isolated

11 pixel judgment unit.

1   3. The image processing apparatus of Claim 2,

2   wherein the character-halftone judgment unit includes:

3   an edge continuity judgment unit for judging a continuity

4 of pixels that are each judged to be in an edge area of a

5 character, by referring to a judgment result of the edge

6 judgment unit relating to a plurality of pixels in a first

7 window of a predetermined size that includes the target pixel;

8 and

9   an isolated pixel counter for counting a number of

10 isolated pixels in a second window of a predetermined size,

11 by referring to a judgment result of the isolated pixel judgment

12 unit relating to the plurality of pixels in the second window,

13   wherein the character-halftone judgment unit judges

14 whether the target pixel is in an edge area of a character

15 that is present on a halftone-dot area, by referring to a

16 judgment result of the edge continuity judgment unit and the

17 number of isolated pixels counted by the isolated pixel

18 counter.

1   4. The image processing apparatus of Claim 2,

2   wherein the isolated pixel judgment unit judges whether

3   the target pixel corresponds to an isolated pixel, by referring

4   to brightness of a plurality of pixels in a window of

5   predetermined size that includes the target pixel.

1   5. The image processing apparatus of Claim 1,

2   wherein the switch unit switches the operation of the

3   image processing between operations of (a) performing edge

4   enhancement and (b) not-performing edge enhancement.

1   6. The image processing apparatus of Claim 1,

2   wherein the switch unit switches the operation of the

3   image processing to be performed on the target pixel, to an

4   operation of not performing edge enhancement that involves

5   (a) attenuation of color components and (b) enhancement of

6   black components, when the color pixel judgment unit judges

7   that the target pixel is not a color pixel and the color area

8   judgment unit judges that the target pixel is not in a color

9   area.

1   7. An image forming apparatus comprising:

2   an acquisition unit for acquiring image data that

3   includes a plurality of pixels, each of which is set as a

4   target pixel to be judged;

5   a color pixel judgment unit for judging whether the target

6   pixel is a color pixel, the color pixel being a pixel other

7   than a monochrome pixel;

8   a color area judgment unit for judging whether the target

9   pixel is in a color area that includes a plurality of color

10   pixels, by referring to a judgment result of the color pixel

11   judgment unit;

12   a character-halftone judgment unit for judging whether

13   the target pixel is in an edge area of a character that is

14   present on a halftone-dot area;

15   a selector for selecting, when a judgment result of the

16   character-halftone   judgment   unit   is   affirmative,   an

17   operation of image processing to be performed on the target

18   pixel in accordance with a judgment result of the color pixel

19   judgment unit and a judgment result of the color area judgment

20   unit;

21   an image correction unit for correcting the image data,

22   in accordance with a selection result of the selector; and

23   an image forming unit for forming an image, based on

24   the image data corrected by the image correction unit.

1   8. The image forming apparatus of Claim 7,

2   wherein the character-halftone judgment unit includes:

3   an edge judgment unit for judging whether the target

4   pixel is in an edge area of a character; and

5   an isolated pixel judgment unit for judging whether the

6   target pixel corresponds to an isolated pixel,

7   wherein the character-halftone judgment unit judges

8   whether the target pixel is in an edge area of a character

9   that is present on a halftone-dot area, by referring to a

10   judgment result of the edge judgment unit and a judgment result

11   of the isolated pixel judgment unit.

1   9. The image forming apparatus of Claim 8,

2   wherein the character-halftone judgment unit includes:

3   an edge continuity judgment unit for judging a continuity

4   of pixels that are each judged to be in an edge area of a

5   character, by referring to a judgment result of the edge

6   judgment unit relating to a plurality of pixels in a first

7   window of a predetermined size that includes the target pixel;

8   and

9   an isolated pixel counter for counting a number of

10   isolated pixels in a second window of a predetermined size,

11   by referring to a judgment result of the isolated pixel judgment

12   unit relating to the plurality of pixels in the second window,

13   wherein the character-halftone judgment unit judges

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14 whether the target pixel is in an edge area of a character

15 that is present on a halftone-dot area, by referring to a

16 judgment result of the edge continuity judgment unit and the

17 number of isolated pixels counted by the isolated pixel counter.

1   10. The image forming apparatus of Claim 8,

2   wherein the isolated pixel judgment unit judges whether

3 the target pixel corresponds to an isolated pixel, by referring

4 to brightness of a plurality of pixels in a window of a

5 predetermined size that includes the target pixel.

1   11. The image forming apparatus of Claim 7,

2   wherein the selector selects the operation of the image

3 processing from operations of (a) performing edge enhancement

4 and (b) not-performing edge enhancement.

1   12. The image forming apparatus of Claim 7,

2   wherein the selector selects the operation of the image

3 processing to be performed on the target pixel, as an operation

4 of not-performing edge enhancement that involves (a)

5 attenuation of color components and (b) enhancement of black

6 components, when the color pixel judgment unit judges that

7 the target pixel is not a color pixel and the color area judgment

8 unit judges that the target pixel is not in a color area.

1   13. An image processing method comprising:

2   an acquisition step for acquiring image data that

3 includes a plurality of pixels, each of which is set as a

4 target pixel to be judged;

5   a color pixel judgment step for judging whether the target

6 pixel is a color pixel, the color pixel being a pixel other

7 than a monochrome pixel;

8   a color area judgment step for judging whether the target

9 pixel is in a color area that includes a plurality of color

10 pixels, by referring to a judgment result in the color pixel

11 judgment step;

12   a character-halftone judgment step for judging whether

13 the target pixel is in an edge area of a character that is

14 present on a halftone-dot area; and

15   a selection step for selecting, when a judgment result

16 in the character-halftone judging step is affirmative, an

17 operation of image processing to be performed on the target

18 pixel in accordance with a judgment result in the color pixel

19 judging step and a judgment result in the color area judging

20 step.

1   14.   The image processing method of Claim 13,

2   wherein the character-halftone judgment step includes:

3   an edge judgment sub-step for judging whether the target

4 pixel is in an edge area of a character; and

5   an isolated pixel judgment sub-step for judging whether

6   the target pixel corresponds to an isolated pixel,

7   wherein in the character-halftone judgment step,

8   whether the target pixel is in an edge area of a character

9   that is present on a halftone-dot area is judged, by referring

10   to a judgment result in the edge judgment sub-step and a judgment

11   result in the isolated pixel judgment sub-step.

1   15. The image processing method of Claim 14,

2   wherein the character-halftone judgment step includes:

3   an edge continuity judgment sub-step for judging a

4   continuity of pixels that are each judged to be in an edge

5   area of a character, by referring to a judgment result in

6   the edge judgment step relating to a plurality of pixels in

7   a first window of a predetermined size that includes the target

8   pixel; and

9   an isolated pixel count sub-step for counting a number

10   of isolated pixels in a second window of a predetermined size,

11   by referring to a judgment result in the isolated pixel judgment

12   step relating to the plurality of pixels in the second window,

13   wherein in the character-halftone judgment step,

14   whether the target pixel is in an edge area of a character

15   that is present on a halftone-dot area is judged, by referring

16   to a judgment result in the edge continuity judgment sub-step

17   and the number of isolated pixels counted in the isolated

18 pixel count sub-step.

1   16. The image processing method of Claim 14,

2   wherein in the isolated pixel judgment step, whether

3 the target pixel corresponds to an isolated pixel is judged,

4 by referring to brightness of a plurality of pixels in a window

5 of a predetermined size that includes the target pixel.

1   . 17. The image processing method of Claim 13,

2   wherein in the selection step, the operation of the image

3 processing is selected from operations of (a) performing edge

4 enhancement and (b) not-performing edge enhancement.

1   18. The image processing method of Claim 13,

2   wherein in the selection step, the operation of the image

3 processing to be performed on the target pixel is selected

4 as an operation of not performing edge enhancement that

5 involves (a) attenuation of color components and (b)

6 enhancement of black components, when the target pixel is

7 judged not to be a color pixel in the color pixel judgment

8 step and the target pixel is judged not to be in a color area

9 in the color area judgment step.